Goddard Space Flight Center 2009 Sample Student Projects

Required Academic Level

Junior/Senior Undergraduate

Category

Engineering

Subcategory

Detectors & Sensors

Project Title

Airborne Earth Science Microwave Imaging Radiometer (AESMIR) and Soil Moisture Active Passive Validation Experiment (SMAPVEx) Coastal Calibration & Processing

Project Description

The goal of the AESMIR and SMAPVEx Coastal Cal & Processing Project shall require the intern to assist in the production of polarimetric brightness temperature derived wind vector maps of the coastal flight zone of the DelMarVa peninsula. This processing task will be done using MATLAB, so the early summer(June) will be used to familiarize the student with the Airborne Earth Science Microwave Imaging Radiometer (AESMIR) and SMAPVEx sensors(various), data formats, and training in the capabilities of the processing software(MATLAB). Finally, an enabling technology development effort enabling biospheric , hydrospheric, and especially cryospheric earth science measurements will be introduced to the intern through multi-discipline engineering meetings. MATLAB modeling and simulation is a key element of this emerging project, called the Slow and Low UAS for Snow Hydrology (SLUSH). The intern might simulate multi-resolution analysis taken by a simulated perspective slow and low, to calibrate the satellite perspective.. (a MOSAIC of coastal calibrations).

Mentor's Expectation of Student

Utilize MatLab Images of ocean surface winds and their directions

Discipline of Project and/or Background Needed to successfuly complete the project

Environmental Science

Skills

Data Acquisition, Windows, Powerpoint, IDL, Image Processing